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BOTANY.<sup>1</sup>

**New Species of Fungi from Various Localities.**—The following new species of fungi have been received from various localities in North America within the past few months:

**POLYPORUS SUBLUTEUS** E. & E. On decaying beech, London, Canada, November, 1896 (Dearness, 699c). Effused with the upper margin more or less reflexed, margin or surface of the pores light yellow (when dry), substance soft and pliable, pilei about 1 cm. long by 3–4 cm. broad, white, short-tomentose, zoneless, subimbricate, margins obtuse, flesh thin, white, of woolly-floccose texture, not at all fibrous. Pores uneven, subcolliculose, unequal in size, round or subsinuous,  $\frac{1}{3}$ – $\frac{3}{4}$  mm. diam.,  $\frac{3}{4}$ –1 cm. long, margin subdentate, dissepiments thin. Spores oblong, a little narrower at one end, white 4–6 x  $1\frac{1}{2}$ –2 $\mu$ . The pores, like the flesh of the pileus, are white inside.

**PORIA SUBVIOLACEA** E. & E. Underside of decaying oak limbs, lying on the ground, Newfield, N. J., September and October, 1896.

Subiculum archnoid-tomentose, white, loose, not separable from the matrix, hymenium at first violet-color with the pores mere hemispherical depressions, but the violet soon fades to dirty white, or yellowish-white, and the pores become more elongated, but still short, more or less irregular in shape, with the margins dentate. Spores allantoid, hyaline,  $3\frac{1}{2}$  x 1 $\mu$ . Soft, juicy and flexible when fresh.

**FAVOLUS STRIATULUS** E. & E. On rotten limbs in woods, Mt. Cuba, Delaware, July, 1896 (Commons, No. 2781).

Stipitate. Pileus convex-plane, firm and rigid when dry, umbilicate, radiate-striate with fine, more deeply colored lines, but not sulcate, 4–5 cm. across, pale light yellow when dry, margin paler, sublobate and uneven, narrowly incurved. Stem central, about 1 cm. long and 3–5 mm. thick, enlarged above into the pileus, solid, pale yellowish, under the lens finely velutinous. Pores unequal, decurrent, subquadrangular or elliptical, 1–2 mm. deep, margins acute and minutely erose-dentate. Spores allantoid, hyaline, 5–7 x 1 $\mu$ . Color, pale yellow throughout.

A coarser, thicker plant than *F. curtisii* Berk., and lacks the ciliate margin and setulose stipe, nor can it be referable to *Polyporus alveolaris* Bosc.

**CORTICIUM FERAX** E. & E. On dead wood, Canada (Macoun). Thin, farinaceous, white, immarginate, soon developing in the central parts

<sup>1</sup> Edited by Prof. C. E. Bessey, University of Nebraska, Lincoln, Nebraska.

small patches of yellowish, smooth, waxy hymenium. Spores elliptical, hyaline, abundant,  $4 \times 3\mu$ .

*PENIOPHORA GLOBIFERA* E. & E. On bark of *Abies*, Canada (Macoun). Effused, thin, soft when fresh, brittle when dry, cinereous, not cracking, closely adnate, margin at first fringed with appressed, silky, white hairs, which soon disappear. Cystidia at first globose, soon prolonged above into stout, rough, lanceolate processes,  $40-70 \times 8-10\mu$ , hyaline. Spores small, globose,  $3\mu$  diam. The cystidia are very abundant and easily seen with a low power, causing the hymenium to appear pubescent.

*ASTERELLA PROSOPIDIS* E. & E. On living bark of *Prosopis dulcis* (Mesquite), near Monterey, Mexico, July, 1896. Dr. B. F. G. Egeling.

Perithecia gregarious or scattered, superficial, depressed-conical,  $\frac{1}{2}$  mm. diam., with a black, shining subconical ostium. Asci clavate-oblong,  $30-35 \times 8-10\mu$ , subsessile, 8-spored, with stout linear paraphyses. Sporidia biserial, fusoid, hyaline, uniseptate, not constricted, subacute,  $12-14 \times 4-4\frac{1}{2}\mu$ .

*CHAETOMIUM SETOSUM* E. & E. On damaged hay in stacks, Rooks Co., Kansas, August 1896 (Bartholomew, No. 2214).

Perithecia at first ovate or ovate-conical, or cylindric-conical, becoming obovate and often flattened above, and contracted below so as to appear stipitate,  $400-500\mu$  high, clothed with straight, erect-spreading, smooth, black hairs,  $150-200\mu$  long and  $5-6\mu$  thick below, tapering above, not branched, with mycelium of reticulate, rough hyphæ and a fringe of brown, subundulate, short hairs around the base. Asci subelliptical,  $10-12 \times 6-7\mu$ . Sporidia elliptical, brown,  $4-5 \times 3-4\mu$ , and  $2-2\frac{1}{2}\mu$  thick.

Differs from *Ch. melioides* C. & P. in the simple, smooth hairs that clothe the perithecia.

*SORDARIA VIOLACEA* E. & E. On horse dung, Rooks Co., Kansas, September 15, 1896 (Bartholomew, No. 2263).

Perithecia semiemergent, 2-4 confluent,  $700-800\mu$  diam., slightly depressed-globose, more or less roughened, with thick walls consisting of an outer dark-colored coriaceous sheet lined inside with a thinner, violet-colored membrane. Ostium hemispherical-papilliform or subdiscoid-depressed. Asci clavate-oblong, rounded at both ends, sessile. Paraphyses abundant, but indistinct. Sporidia 8 in an ascus, oblong-elliptical, becoming opaque,  $30-45 \times 19-21\mu$ . The perithecia are mostly in confluent groups, but there is no true stroma.

*SORDARIA AMPHISPHERIODES* E. & E. On cow dung, Rooks Co., Kansas, August, 1896 (Bartholomew, No. 2249).

Perithecia scattered or 2-4 together, mostly about  $\frac{3}{4}$  mm. diam., membranaceous, globose or slightly depressed-globose, entirely buried in the matrix which is not discolored within, the very short neck terminating in a depressed-globose, or subdiscoid ostiolum perforated in the center and erumpent through a black, superficial, stromatic shield, exactly as in *Clypeosphæria*. Generally the ostiolum is seated in a slight depression. Asci cylindrical, 220-230 x 20 $\mu$ , very short stipitate, with cylindrical, continuous paraphyses longer than the asci and about 4 $\mu$  thick. Sporidia uniseriate, elliptical or oblong-elliptical, yellowish, becoming opaque, 27-30 x 19-21 $\mu$ , not appendiculate. Allied to *S. merdaria* (Fr.) and *S. macrospora* Awd., but distinguished from both by the stromatic shield.

PODOSPORA MINOR E. & E. On old stalk of *Zea mays*, Rooks Co., Kansas, July, 1896 (Bartholomew, No. 2204).

Perithecia loosely gregarious, erumpent superficial, ovate-conical, 500 x 400 $\mu$ , loosely clothed, except the black, obtuse, stout, short-cylindrical ostiolum, with spreading brown hairs. Asci cylindrical, 150 x 20 $\mu$ . Sporidia obliquely uniseriate, ovate-elliptical or almond-shaped, 25-35 x 15-22 $\mu$ , with a cylindrical, obtuse, brownish appendage 12-15 x 4 $\mu$  at base, and sometimes with a much shorter, deciduous one at the apex. Differs from *P. brassicæ* Kl. in its smaller size throughout.

ROSELLINIA BIGELOVIE E. & E. On dead stems of *Bigelovia graveolens*, Golden, Colo., December, 1896 (Bethel, No. 15).

Perithecia erumpent-superficial, scattered or gregarious and cespitose, ovate-globose,  $\frac{1}{4}$ - $\frac{1}{3}$  mm. diam., with a distinct, acutely papilliform ostiolum. Asci cylindrical, about 50 x 5 $\mu$ . Paraphyses filiform, abundant. Sporidia uniseriate, oblong-elliptical, brown, 6-8 x 3 $\frac{1}{2}$ -4 $\frac{1}{2}$  $\mu$ .

PHYSALOSPORA BETULINA E. & E. On birch bark, Newfoundland, September, 1896 (Rev. A. C. Wagborne, No. 62).

Perithecia subgregarious, sunk in the bark, but the apex raising the epidermis into pustules, ovate-globose, 400-550 $\mu$  diam., light colored inside. Ostiolum inconspicuous. Asci clavate-cylindrical, 110 x 12 $\mu$ , with abundant paraphyses. Sporidia uniseriate, elliptical or obovate, hyaline with one or two large nuclei, 18-22 x 10-12 $\mu$ .

LEPTOSPHÆRIA PHASEOLORUM E. & E. On old bean vines (*Phaseolus vulgaris*, cult., with *Diaporthe phaseolorum* C. & E., Newfield, N. J., July 27, 1896).

Perithecia scattered, ovate-globose, about  $\frac{1}{4}$  mm. diam., covered by the epidermis, which is raised into slight pustules and pierced by the conical or conic-cylindrical ostiolum. Asci clavate-cylindrical, short-stipitate, paraphysate. Sporidia biserial, oblong-fusoid, subobtus,

slightly curved or subinequilateral, 3-5 septate and constricted at the septa, hyaline, becoming brown,  $16-22 \times 5-6\mu$ . Differs from *L. artemisiae* Fckl. in its smaller size throughout.

PLEOSPORA FINDENS E. & E. On dead culms of *Andropogon virginicum*, Newfield, N. J., October, 1896.

Perithecia buried, globose,  $150\mu$  diam., with the conic-tuberculiform ostiolum erumpent. Asci cylindrical, short-stipitate,  $130-150 \times 12\mu$ . Paraphyses none. Sporidia uniseriate, oblong, 5-septate, most of them with one or two cells divided by a longitudinal septum, straw-yellow. Many of the sporidia are without any longitudinal septa, resembling *Leptosphaeria*. The pycnidial form is a *Hendersonia*, similar outwardly to the ascigerous, but with fusoid, straw-yellow, 3-4 septate sporules,  $20-34 \times 3-5\mu$ .

PLEOSPORA OLIGOSTACHYÆ E. & E. On leaves of *Bouteloua oligostachya*, Rooks Co., Kansas, October 1896 (Bartholomew, No. 2325).

Perithecia scattered, hemispheric-prominent, small ( $200\mu$ ), black, with a minute papilliform ostiolum. Asci oblong-cylindrical, short stipitate,  $65-75 \times 12-14\mu$ , with abundant paraphyses. Sporidia beseriate, oblong-elliptical, subinequilateral, 3-septate, scarcely constricted, one of the cells often divided by a longitudinal septum, but quite as often this is wanting,  $14-17 \times 6-7\mu$ .

DIAPORTHE RADICINA E. & E. On bulbous base of culms of dead *Phleum pratense*, Newfield, N. J., December, 1896.

Perithecia in small groups buried in the matrix, which is blackened on the surface, about  $\frac{1}{4}$  mm. diam. Ostiola erumpent, short-cylindrical, smooth, obtuse. Asci (p. sp.) cylindric-fusoid,  $40-45 \times 5-6\mu$ . Sporidia 1-2 seriate, oblong, 3-4 nucleate, scarcely constricted,  $10-12 \times 3-4\mu$ .

EUTYPELLA POPULI E. & E. On dead limbs of *Populus*, Canada (Macoun).

Stroma orbicular, convex, 1-2 mm. diam., seated on the wood and raising the bark into pustules, not circumscribed. Perithecia 12-30 in a stroma, closely packed, ovate-globose, about  $\frac{1}{4}$  mm. diameter. Ostiola short cylindric-conical, erumpent in a dense, flat-topped fascicle, distinctly quadrisulcate. Asci (p. sp.) about  $20 \times 4\mu$ . Sporidia subbiserial, allantoid, only slightly curved, brownish in the mass,  $4-5 \times 1-1\frac{1}{2}\mu$ .

VALSARIA COLORADENSIS E. & E. On dead bark of *Negundo aceroides*, Overland, Colorado, November, 1896 (E. Bethel, No. 136).

Perithecia 4-6 or more, buried in a cortical stroma consisting of the whitened (but otherwise unchanged) substance of the bark, about  $\frac{1}{2}$  mm. diam., with thick coriaceous walls. Ostiola slightly erumpent through small chinks in the bark, subconfluent, conic-tuberculiform,

black, mostly subseriately arranged. Asci clavate-cylindrical, 50–60 x 6–7 $\mu$ , obscurely paraphysate, 8-spored. Sporidia subbiseriate, oblong-cylindrical, slightly curved, obtuse, brown, uniseptate, but not constricted, 12–15 x 3–3½ $\mu$ .

The white substance of the stroma is surrounded by a thin, black layer, which, on a horizontal section, shows as a black line. Stroma orbicular or elongated, 2 mm.–1 cm. long.—J. B. ELLIS and B. M. EVERHARDT.

(To be continued.)

**Botanical News.**—The second century of Josephine E. Tilden's American Algæ has been distributed. It continues to maintain the high standard of excellence possessed by the first century. We should prefer to see the editor confine this distribution to the fresh-water algæ, since every marine form is but a duplicate of what one finds in so many other sets.

Professor L. H. Bailey's "Teacher's Leaflets," promise to be of great value, if we may judge from the one issued December 1st, entitled "How a Squash Plant Gets Out of the Seed." It consists of seven pages of text illustrated by fourteen *new* figures of every stage of the process. This leaflet should be in the hands of every High-School teacher of Botany.

We are glad to notice that the handy "Guide to the Organic Drugs of the United States Pharmacopœia," prepared by John S. Wright and published by Eli Lilly & Co., of Indianapolis, has reached its thirteenth thousand, and has been revised and greatly improved.

"Fodder and Forage Plants," by Jared G. Smith; "Useful and Ornamental Grasses," by F. Lamson Scribner, and "Studies on American Grasses," are respectively Bulletins 2, 3 and 4 of the Division of Agrostology in the United States Department of Agriculture. They have both a practical and scientific interest, and reflect credit upon the authors. In Bulletin 4 some generic changes are proposed, and a number of new species are described. The generic name *Chaetochloa* is proposed for *Setaria* (preoccupied), *Chamaeraphis* for *Isophorus* (distinct genera). Accordingly the familiar *Setaria glauca* is hereafter to be *Chaetochloa* (L.) Scribn., *S. viridis* will be *C. viridis* (L.) Scribn., and *S. italica* *C. italica* (L.) Scribn.

The second bulletin of the New York Botanical Garden (issued January 1st) contains, in addition to Dr. Britton's vice-presidential address on Botanical Gardens (given before Section F of the American Association for the Advancement of Science), reports, plans, maps, regulations, etc. The map showing the general plan of the Garden is very

interesting, and promises that when fully installed it will be one of the most instructive gardens in the Western Hemisphere.

In a recent number of *Garden and Forest* (January 13), Professor Card makes a strong plea for experimental plant physiology as an adjunct to instruction in modern horticulture. It will repay reading by all botanists, and should encourage the introduction of physiological work in agricultural colleges, where it has generally been neglected, as well as in the larger universities where it has already had some recognition.

Professor Hitchcock's bulletin (62) on Corn Smut, issued by the Kansas Experiment Station, gives, in addition to much relating to structure and the germination of the spores, an extended synonymy and bibliography. He concludes, rather hastily, we think, that the name under which this smut be known is *Ustilago maydis zeae* (DC) Magnus (= *Uredo segetum* var. *maydis zeae* DC., Fl. Fr., II, 1805, = *Uredo maydis* DC. Fl. Fr., VI, 1815). De Candolle himself did not consider that he had sufficiently designated it in Vol. II of "Flora Francaise," since, in Vol. VI, he does not refer to his note in the earlier volume, but proceeds to describe it as a distinct species under the name *Uredo maydis*. We should not now compel De Candolle to say in 1805 what, ten years later, he himself felt that he had not said.

Another little book has appeared from the facile pen of Professor L. H. Bailey, which is, incidentally, of considerable interest to botanists, although primarily designed for gardeners. Under the title, "The Forcing Book" (The Macmillan Company), he tells much about greenhouse construction, heating and management, which will be most useful to those botanists who possess, or hope to build, a plant-house. The chapters on Lettuce, Cauliflower, Radishes, Tomatoes, Cucumbers, etc., are admirable illustrations of clear presentations, and will be valuable to botanists as well as gardeners.—CHARLES E. BESSEY.

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## ZOOLOGY.

*Paramœba eilhardii*.<sup>1</sup>—The amœboid organism to which Dr. Fr. Schaundinn gives this new specific and generic name was found by him in the salt-water aquarium of the Berlin Zoological Institute. Its life history was found to consist of three stages. (1) An amœboid stage, in which the organism measures from 10-90 $\mu$  microns, is disc-

<sup>1</sup>S. B. K. Preuss. A. K., 1896, pp. 31-41 (12 figs.).